

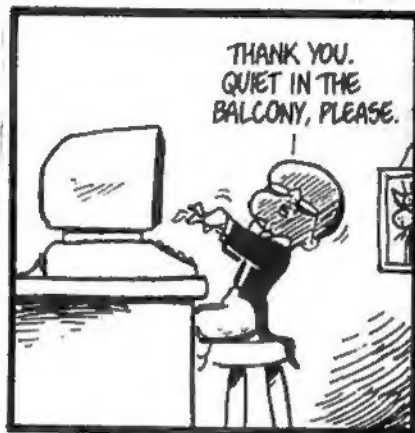
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Affordable Quality for the Timex Computer User

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NO. 8

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with your ZX81/TS1000

By Mather White

Plus

"Musicola" for the 2068

Review by Bill Ferrebee

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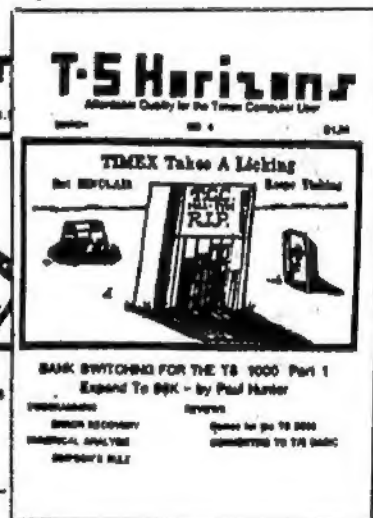
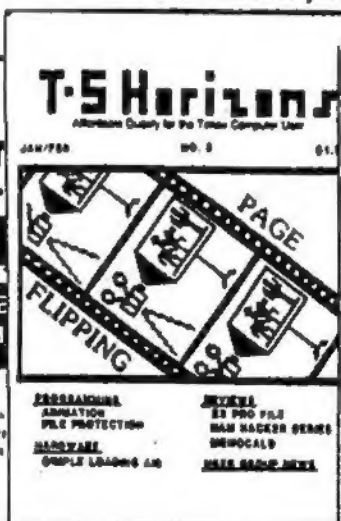
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Dear Reader,

The introduction to T-S Horizons #1 (November 1983) stated that "[in the future] you will find that T-S Horizons will benefit you more than any other magazine for the Sinclair computer. Little did we know that in 1984 that "prophecy" would come true "by default." So far we've seen the demise of Sync, TS User, and Timex Sinclair User. Z-West was also cancelled, but fortunately Gordon Young is still actively supporting Timex users with articles in T-S Horizons and Computer Trader. Syntax still has a loyal following despite its low page count and recent price like (now \$48 per year).

From the response we have received from issue #7 it appears we are on the right track. I have to agree with those who have called it our best issue to date, and I have to give the credit to the talented writers who have been such a great resource for T-S Horizons.

TS Computing - Bad News

A lot of people would like to get their hands on Mr. Mike Wilson.

To those who subscribed to his "TS Computing" or sent products for review, we offer our sympathy. He published one issue of his newsletter (May) and mailed it to user groups and mail lists he had obtained, offering subscription for \$10 per year.

When no subsequent issues appeared and after we had received phone calls from certain parties who had been taken in by Mr. Wilson, we decided to call him. The operator informed me that his number (listed in several places in TS Computing) had been changed to an unlisted number.

I then wrote him a letter and asked him to call me with some explanations. A week later

he did call and started telling me how he tried his hardest but that the Timex market was dead, Timex computers were junk, the QL is junk, and a long string of other equal blasphemies. When I told him TSH has 1000 subscribers and is growing daily, he launched into a totally uncalled-for attack on a certain software vendor who had tried to help get "TS Computing" off the ground, believing it to be a legitimate enterprise.

I got no answer when I asked if his subscribers had been refunded their money. He also claimed that someone at the phone company had his phone number changed without his knowledge or request, and that someone was ordering T-S-related merchandise and having it shipped to his address and intercepting it from U.P.S. before it got to his house. If any reader has a bone to pick with Wilson his new phone number is 1-212-513-7559 unless its been mysteriously changed again. And tell him T-S Horizons sent you.

Special Request

If you respond to an ad or any review, announcement, or passing comment for any product or service mentioned in T-S Horizons, please tell the vendor where you found the information, whether you are ordering the product or just requesting more information. This is an enormous help to us. Recently Jules Gesang, of the Capitol Area T.S. (CATS) User Groups, said they got several orders from T-S Horizons readers, but the only way he knew that was because we had listed the wrong price. None of these people bothered to mention T-S Horizons in their order. (Note: CATS newsletter is available for \$12 per year - not \$10 - from CATS, P.O.Box 644, Bladenburg, MD 20710)

For T-S Horizons to grow and provide more and better articles, we need a stable advertiser base. These advertisers also need feed back to better invest their advertising budget. Those companies who have stuck with Timex users through thick and thin deserve and need our support.

TSH

A Personal Note From GORDON YOUNG

Rick,

If its OK with you, I would like you to print this comment in the next issue.

I want to thank all of those who have spent their time calling, writing and showing their interest in software I have written or articles that have appeared here in TSH. Many have offered suggestions to help me, led me to others who can help with particular needs, and kept me updated with activities. In the last month I have notice that you at home are showing more support by speaking up and letting us know you are out there. By ordering items or even just writing, we know you are there and this is the best indicator to base future planning on. There are a few individuals who can create quality software or hardware but, until they get a feeling that a market (however small) exists, they may not bother to create it. Over the next few months I will be exploring the 2068 and share what I learn with you. Your letters and phone calls will help me decide what to touch on.

Gordon Young
4616 North River Road 27
Oceanside, California 92056
(619) 722-2711

Attention User Groups

If you are associated with a Timex/Sinclair user group or if your user group has a Timex special interest group, please let us know. We are currently preparing a listing of user groups. Please give name of group, address, phone number (optional), name of contact person, number of member, and information about your newsletter if you have one. (Note: Even if you've sent us this information before, we would like you to send it in again.)

NOTE: In reference to the "WORM" series, Warren Tucker of Vallejo, California sent this submission. It is an improved M.C. error checking routing.

```

6030 REM ROUTINE GIVES (CODE)
      LINE NUMBER, ADDRESS
      AND CODE
6031 REM ENTER FROM PROGRAM
      LINE NUMBER 6059
6032 LET S=0
6033 LET D="---"
6034 LET O=S+3
6035 LET K=X-5
6036 LET A=STR$ K
6037 LET A=A+D
6038 FOR O=N-35 TO N+5 STEP 2
6039 SCROLL
6040 PRINT TAB 6;A;TAB 5;D;" "
      ;PEEK D;TAB 19;(D+1);" ";PEEK (
      D+1)
6041 LET S=S+1
6042 IF NOT S=0 THEN LET A="---"
6043 IF S=0 THEN LET K=K+1
6044 IF S=0 THEN LET A=STR$ K+B
      $
6045 IF S=0 THEN LET G=G+3
6046 NEXT D
6047 PAUSE 4E4
6048 SCROLL
6049 SCROLL
6050 SCROLL
6051 SCROLL
6052 GOTO 6062
6053 REM
6054 REM CODE ENTERED IN
      "LINE 1 REM CODES"
      BY LINE NUMBER.
6055 REM
6056 PRINT AT 16,0;"TYPE STARTIN
      G ADDRESS";AT 16,1;"MUST BE
      NUMBER"
6057 INPUT B
6058 CLS
6059 LET X=((B-INT 16514)/5)+1
6060 LET G=X+5
6061 FOR N=5 TO 17154 STEP 6
6062 FAST
6063 PRINT AT 19,0;"LINE ";X
6064 SCROLL
6065 PRINT AT 19,0;PEEK N;TAB 5;
      PEEK (N+1);TAB 10;PEEK (N+2);TAB
      15;PEEK (N+3);TAB 20;PEEK (N+4)
      ;TAB 25;PEEK (N+5)
6066 IF X=0 THEN PAUSE 4E4
6067 REM GOTO TO ROUTINE TO FIND
      LINE NUMBER, ADDRESS AND CODE
      7 LINES AT A TIME.
6068 IF INKEY$="A" THEN GOTO 6069
      0
6069 SCROLL
6070 SCROLL
6071 IF X=0 THEN LET G=G+7
6072 LET X=X+1
6073 NEXT N
6074 REM ***BASIC ASSEMBLER***
6075 REM TO GOTO 6040
6076 REM
6077 PRINT AT 21,0;"TYPE STARTIN
      G ADDRESS AND
      ES"
6078 PRINT AT 19,5;"TO INPUT COD
      ES"
6079 INPUT B
6080 CLS
6081 LET N=5
6082 LET M=0
6083 INPUT A
6084 IF A>300 THEN GOTO 9999
6085 POKE N,A
6086 PRINT AT 20,M;A
6087 LET N=N+1
6088 LET M=M+5
6089 IF M<25 THEN GOTO 9979
6090 LET M=0
6091 SCROLL
6092 GOTO 9979
6093 IF A=555 THEN GOTO 9999
6094 IF A=555 THEN GOTO 9997
6095 LET N=N-1
6096 IF M=0 THEN LET M=30
6097 IF M<25 THEN LET M=M-5
6098 IF M=-5 THEN LET M=0
6099 PRINT AT 20,M;" "
6100 GOTO 9979
6101 SAVE "WORM"
6102 GOTO 9978
6103 STOP

```

TSH

PLOTTER FOR T-S 2068

In TS-Horizons #5 it was mistakenly reported that Johnson's and Swartz's graphics program for the TS1000/ZX81 would run on the TS 2068. Below is a version of the original program which will run on the TS 2068.

Provided by John Marion.

```

10 POKE 23658,8: GO SUB 200
20 LET X=110: LET Y=80
30 LET MODE=1
40 LET X=X+(INKEY$="8")-(INKEY$="5")
50 LET Y=Y+(INKEY$="7")-(INKEY$="6")
60 IF Y>175 THEN LET Y=175
70 IF Y<0 THEN LET Y=0
80 IF X>255 THEN LET X=255
90 IF X<0 THEN LET X=0
100 IF INKEY$="M" THEN LET MODE=0
110 IF INKEY$="D" THEN LET MODE=1
120 IF INKEY$="Z" THEN COPY
125 IF INKEY$="U" THEN CLS
130 IF INKEY$="I" THEN GO TO 50
135 IF INKEY$="O" THEN GO TO 10
140 IF INKEY$="S" THEN GO TO 70
145 IF INKEY$="L" THEN GO TO 75
150 IF MODE=0 THEN GO TO 180
160 OVER 1: PLOT X,Y: OVER 0: PLOT X,Y
170 GO TO 40
180 OVER 0: PLOT X,Y: OVER 1: PLOT X,Y
190 GO TO 40
200 CLS
210 PRINT AT 1,10;"PLOTTER:"
220 PRINT "HARRY W. JOHNSON"
230 PRINT "AND GARY L. SWARTZ"
240 PRINT "COLLEEN, PENNSYLVANIA"
250 PRINT "SERIES FOR 2068"
260 PRINT "KEY ""M"" TO MOVE WITH OUT"
270 PRINT "PLOTTING OR TO ERASE"
280 PRINT "KEY ""D"" TO DRAW."
290 PRINT "KEY ""Z"" TO COPY TO 2040 PRINTER."
300 PRINT "MOVE USING THE ARR KEYS."
310 PRINT "PRESS ANY KEY TO CONTINUE"
320 PAUSE 4E4
330 CLS
340 PRINT AT 1,10;"PLOTTER:"
350 PRINT "KEY ""I"" TO ENTER TEXT."

```

```

360 PRINT "POSITION CURSOR THEN KEY ""P"" WILL APPEAR"
370 PRINT "ENTER YOUR TEXT, IT WILL APPEAR"
380 PRINT "AT CURSOR POINT."
390 PRINT "KEY ""S"" TO SAVE SCREEN"
400 PRINT "KEY ""L"" TO LOAD SCREEN"
405 PRINT "KEY ""U"" TO CLEAR SCREEN"
410 PRINT "KEY ""O"" TO QUIT PROGRAM"
420 PRINT "PRESS ANY KEY TO CONTINUE"
430 PAUSE 4E4
440 CLS
450 RETURN
500 OVER 0: LET L=21: LET C=0
510 IF L>21 THEN LET L=21
520 IF L<0 THEN LET L=0
530 IF C>31 THEN LET C=31
540 IF C<0 THEN LET C=0
550 PRINT AT L,C;" "
555 FOR V=1 TO 10: NEXT V
560 PRINT AT L,C;" "
570 LET L=L+(INKEY$="6")-(INKEY$="7")
580 LET C=C+(INKEY$="8")-(INKEY$="5")
590 IF INKEY$="P" THEN GO TO 61
600 GO TO 510
610 PRINT AT L,C;" "
620 INPUT H$
630 PRINT AT L,C;" ";H$
640 GO TO 40
700 INPUT "SAVE NAME ";A$
710 IF A$="" THEN GO TO 40
720 SAVE A$SCREEN$
730 GO TO 40
750 INPUT "LOAD NAME ";A$
760 LOAD A$SCREEN$
770 GO TO 40
800 SAVE "PLOTTER" LINE 10
810 RUN

```

Some readers had questions about the program as it originally appeared in T-S Horizons #5. These questions are answered below.

1. Line 55 in the original program says "GOTO 16." Of course there is no line 16 in the program, but it is an acceptable instruction. The program merely looks for the next line number after 16 (20 in this case) and jumps ahead. No problem.

2. Line 251. "PAUSE 4E4" is a simple way to tell your computer to stop what it's doing and wait. In this case pressing any key on the keyboard causes the program to restart.

3. Line 125. For those of you who had trouble reading this line in your copy here it is: "125 IF Y>43 THEN LET Y=43."

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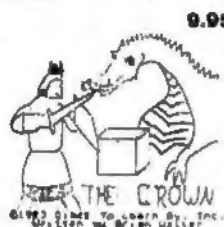
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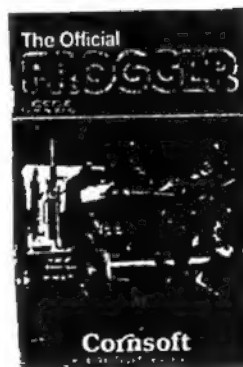
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Art for All Ages. Another good program for the beginning designer is **Art for All Ages** for the TMS 2068. This software lets you start drawing with circles and squares. Later, you can expand to create pictures in free-hand using a joystick. **Art for All Ages** features eight colors and a "whoops" key that lets you erase a line you've just created. You can even alter a picture after you've saved it. There's also a command that lets you pluck out part of the picture and move it to somewhere else on the screen, or remove it altogether. **Art for All Ages** is currently available from Games to Learn By at P.O. Box 575, Williamsburg, MA, 01096, and costs \$15.95.

***** STLB'S *****
***** NEW RELEASES for T/S 2068 *****
***** We have the manufacturing rights for PRION's VU-File (\$16.00), VU-3D (\$16.00), VU-Calc (\$16.00), Flight Simulator (\$16.00), also Sega & Comsoft's FROGGER (\$19.95). *****

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"IN TOUCH WITH THE WORLD"

By Bill Ferrebee
MOUNTAINEER SOFTWARE

Welcome to this month's column! I have a lot of interesting information for those of you that have already joined the ranks of "T/S Telecommunicators". And for those of you that have yet to get your modem, I think that this column will make you interested enough to make a modem your next purchase.

First, as I promised, I will give you my review of the Westridge 2050 modem. As most of you know, the Westridge is the modem that Timex was supposed to release themselves. However, since Timex dropped out of the personal computer market, and the demand for the modem was high enough, Westridge decided to release it with their name.

The Westridge is a direct-connect, 300-baud modem that is specifically designed for T/S computers. Through the use of the well-known Timex connector, this modem can be attached as easily as a RAM expansion or printer. And because of its "piggyback" design, other peripherals can be attached behind it.

The Westridge is also compatible with any (1000, 1500, or 2068) T/S computer. The communications software (SMART D provided has the program for the 1000/1500 on one side, and for the 2068 on the other.

Once the modem is attached to the computer, the telephone line is attached to the modem, power is turned on, and the software is loaded, you are ready to TELECOMMUNICATE! The software allows you to use the numeric keys on the computer to dial the number needed to call whatever location you desire (I will be giving you some EXCELLENT T/S-oriented BBSs later in this column).

While you are communicating with someone, you can send your screen to a printer. Also, by leaving the software and your computer running while you are gone, another person

can call you and leave you a message (AUTO-ANSWER).

By the time you read this column, Westridge should have their SMART II software available, which will enable you to upload and download information to another T/S computer. More on this subject in the next column.

Overall, I feel that the Westridge 2050 modem is a very well-built, very easy-to-use-modem, and I recommend it to anyone that wants to use their computer to its fullest extent.

For those of you that already have a modem, and want some number to call that are SPECIFICALLY geared to T/S computer, this section is for you!

Yes, Bulletin Board Systems (BBSs for short) DO exist that cater to the T/S user. And the good news is...they're FREE! Except for the phone call charges, these boards are free, and they run 24 hours, 7 days a week.

The first one is very special to me. Basically because I AM THE SYSOP (SYSTEM OPERATOR) OF THIS BOARD! It is called the "RIVER CITIES SMART BBS" and is located in Sistersville, West Virginia. The telephone number is (304) 652-1416.

The first time you call the board, you will be asked to register for the SIG (Special Interest Group) you want. The board also has SIGs for Atari and IRS-80, but the T/S SIG is the largest of all!

The SIG is actually a "board within a board". Features include:

- A fully-blown message center (you can leave messages to anyone on the board...and receive some, too)
- An Informational Section (You will be able to read this column BEFORE you get your copy

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of T/S Horizons...along with some product reviews, and a current list of T/S User Groups around the country...send my YOUR Group's information to put in this section)

- The latest news on developments concerning T/S users

- And, once the new SMART II software is available, you will be able to upload and download some programs for both 1000 and 2068 computers!

Again, the telephone number is (304)652-1416. Please give us a call, and leave me a message in care of TIMEX SYSOP!

Another BBS that is geared to T/S users is the ZEBRA SYSTEMS BBS, run by Zebra Systems, Inc. of Woonaven, New York. The number for this board is (212)296-2229. I have called this board quite a few times, and it also has features like a Message Center, listings of user groups, etc. Since it is run by a Mail Order Company for T/S products, it also features a section with merchandise. I feel

Zebra Systems has a very good board, and is worth your calling.

In next month's column, I hope to bring you a review of the SMART II software for the Westridge modem, along with a review of the BYTE-BACK modem (HINT - HINT BYTE-BACK!!!). Also, I will be giving more information on numbers of interest for T/S users (including some TOLL-FREE numbers!).

Please don't hesitate to contact me if you have any questions, comments, or suggestions. You can leave me a message on the RIVER CITIES SHORT BBS (in care of TIMEX SYSOP), or by writing:

Bill Ferrebee
MOUNTAINEER SOFTWARE
115 North 7th Avenue
Paden City, West Virginia 26159

Until next month, HAPPY TELECOMMUNICATING!

T S H

Attention Technical Types: SUM* is here!!!

SUM

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is a compendium of numerical programs for the small system user by T-S Horizon columnist K.D. Lewis. It contains

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Making Music With The ZX81

By Mather White

RD 1, Box 151A
Rome, PA 18837

Although the ZX81 (TS-1000) does not have a SOUND command included in its BASIC language, it is possible to make sound with it, and this article tells how.

The sound generated by this program is available at the MIC jack for recording with your cassette recorder, amplifying with a mini amplifier, or monitoring with an earphone. It can also be heard over your TV by turning up the volume.

The programming steps should be followed exactly as shown below.

```
1 PRINT 9,9,9,9,9,9,9,9,9,9,
```

Now press the EDIT key, change the line number to a 2, ENTER, EDIT, change to a 3, and so on, up to 7, so that you have seven lines exactly like line 1. Now enter:

```
POKE 16510,0
POKE 16511,86
POKE 16512,2
POKE 16513,234
10 FOR I=1 TO LEN A$-1 STEP 2
20 POKE F,CODE A$(I)*16+CODE A$
(I+1)-476
30 LET F=F+I
40 NEXT I
LET F=16515
LET A$="51AF0BF0A088C01520F7
53AFD3FFAF0C01520F72B7C8520E7C9
21D140061F7EA7C8234E23E5596F2600
29292929CD8340E126EBC901001F1E00
CD834028FBC921D14011D24001000236
00EDB0C9"
GOTO 10
```

After the program runs, enter this:

```
10 SAVE "MUSIC"
CLEAR
```

Now put the computer in the FAST mode if you haven't already, enter a driver program of your choice, get the tape ready to record, and GOTO 10. The driver program will run immediately after SAVEing.

DRIVER 1(Mini Organ).

This program plays different notes when only key (except shift, BREAK, and ENTER) is pressed. When you press a key, the program waits until you stop pressing it, and then plays it until a new key is pressed.

```
20 FOR F=27 TO 63
30 PRINT CHR$ F;"?";
40 INPUT I
50 LET A$=A$+CHR$ I
60 NEXT F
LET A$=""
GOTO 20
```

The program now asks for values for each key (0-255). I would suggest that the period (.) get a 225, since it is the last useable key on the keyboard, the 1 key a 7, and the other keys staggered in between these. A formula you might want to use would be:

$$6*(10*(\text{row key is on})+1)+\text{key in row}$$

If you do use this formula, the values will be spread over a range of 1 to 234. For example, using this, the 1 key would get a 1, and the period key would get a 234.

After entering the values, enter this:

```
20 POKE 16559,CODE A$((NOT USR
16558)+CODE INKEY$-26)
30 POKE 16572,PEEK 16559
40 IF INKEY$<>" THEN GOTO 40
50 GOTO 20
50 (enter)
GOTO 10
```

DRIVER 2(mathematically generated waveforms).

This driver lets you input a mathematical formula of your choice, which is used to form the tones. It also plots the waveform into the screen. Press the Y key to hear a waveform again or the break key to end the program.

```
20 PRINT "LENGTH?(1-25) "
30 INPUT I
40 POKE 16549,0
50 POKE 16555,I
55 POKE 16554,33
60 PRINT "FORMULA?"
70 INPUT I$
75 CLS
77 PRINT "PRESS ANY KEY"
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80 FOR I=0 TO 254
90 POKE 16593+I,VAL I$
100 NEXT I
110 POKE I 0
120 FOR I=0 TO 254 STEP 8
130 PLOT I +,INT (VAL I$/8)
140 NEXT I
150 PAUSE 4E4
160 IF INKEY$<" THEN GO TO 16
Q
170 RAND USR 16541
175 PAUSE 4E4
177 IF INKEY$="Y" THEN GO TO 16
Q
180 POKE 16549,35
190 POKE 16554,111
200 POKE 16555,38
210 GO TO 20
```

Here are some sample formulas:

```
ABS INT(254-91.5*LN(I+1))
127-INT(127*COS(I+1))
ABS (61-INT(190*COS(I/40.155)))
ABSINT(288-34*SQR(I+1))
```

If you want to do some formulas of your own, here is a program that displays the values generated from a formula, so that you can check for the proper range (0-255).

```
300 PRINT "FORMULA?"
310 INPUT I$
320 DIM A$(1,4)
330 FOR I=0 TO 254
340 LET A$(I)=STR$ VAL I$
350 PRINT A$(I);
360 NEXT I
```

The whole field will not fit on the screen at once, so you will have to use CONT to see the second part.

Using these routines in your own programs

If you want to use these routines in your own programs, you should know some facts about music.

1. The frequency of middle C is 440 Hz (cycles per second).
2. If the frequency of a note is doubled or halved, the note changes by an octave.
3. There are twelve semitones, or half tones, in an octave.

The width of each semitone depends on what octave it is on. If we wanted to find the frequency of D:

$$D=C+C/12*\text{tone}(2)=513\text{Hz for D above middle C}$$

In this formula, the notes are numbered from 0 to 11, like this: C=0 C#=1 D=2 ... B=11

To play a note or notes, POKE the length byte, then the tone byte for up to 256 notes into memory starting at 16593. Then poke a zero byte into the next byte of memory after the last note, and RAND USR 16541 in the FAST mode.

If you know the frequency of a note you want to play, to find the number to POKE into memory, use this formula:

$$\text{POKE value} = (3,250,000/\text{frequency}-24)188$$

So, using this formula, the value for middle C is 83.6(84).

When you know what the POKE value for a note is, and how long H should last, use this formula to find what the length byte should be:

$$\text{length byte} = \frac{\text{seconds} * 203,125}{\text{POKE value} * 88 + 24}$$

For example, for a middle C note to last 1/2 second, the length byte would be 6.8(7).

Operating Theory

1. Tone Generator Routine

Before entry to this routine, the registers should be set to:

B=1FH C=input half cycle
E=output half cycle HL=number of cycles

The input half cycle is the black part on the TV screen, while the output half cycle is the white part. The routine automatically ends if any key is pressed (if you don't want it to be interrupted by the keyboard, let B=0).

The total of C+E determines the tone, but it sounds somewhat different, if C=20 and E=80 than if C=80 and E=20. The length of the tone in seconds (assuming no key is pressed) is:

HL*[44*(C+E)+24]

3,250,000(processor speed is 3.25MHz)

If a value is 0 it is treated as a 256. Register D is used as the delay counter in both parts of each cycle. The IN A,(FEH) instruction serves to turn off output, read the keyboard, and read the EARjack, which is in bit 7 (not used in this program).

2. Digital Playback Routine

Before entering this routine, the data should be stored in memory, first the length byte, and then the tone byte. A zero byte marks the end of data. Formulas for determining the tone and length bytes were given earlier.

The routine first checks to see if the end of data has been reached, and if not, the tone is put in registers C and E, the length byte is multiplied by 16, and the tone generator

tone generator 3.0

26 BYTES

BEFORE A CALL:

B=1FH C=listening time

B=playing time HL=length of tone

routine (which actually makes the sound) is called. This routine returns to BASIC if any key has been pressed.

3. Note Player Routine

The note player plays a tone which has been POKED into memory until any key is pressed.

4. Clear Buffer Routine

This routine can be called any time you want to clear the buffer. Use:

PRINT USR 16579

Conclusion

These programs will be useful for anyone learning machine language, synthesizing music, or writing game programs.

AFTER THE CALL:

AF,D, and HZ are used.

flags: Z if the end of tone has been reached
NZ if a key has been pressed.

object code	label	mnemonic	comments
51	tone	LD D,C	; D=input half cycle
AF	listen	XOR A	; A=0
DBFE		IN A,(FEH)	;turn off output and get
A0		AND B	keyboard input
B8		CP B	;mask tape bits and return
C0		RET NZ	if any key is pressed
15		DEC D	;decrement counter
20F7		JR NZ, listen	;repeat until end of cycle
53		LD D,E	;D=output half cycle
AF	play	XOR A	;A=0
D3FF		OUT (FFH), A	;turn on output
AF		XOR A	;A=0
AF		XOR A	
C0		RET NZ	;no return
15		DEC D	;decrement counter
20F7		JR NZ,play	and repeat
2B		DEC HL	;decrement cycle counter
7C		LD A,H	
B5		OR L	;HL=0?
20F7		JR NZ,tone	
C9		RET	

obje
21D1
061F
7E
A7
C8
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4E
23
E5
59
6F
2600
29
29
29
29
CD834
E1
E8EH
C9

objec
01001
1E00
CD834
28FB
C9

objec
21D14
11D24
01000
3600
E8E0
C9

DIGITAL PLAYBACK 3.0
27 BYTES
DATA FORMAT: LENGTH/16, TONE...

object code	label	mnemonic	comments
Z1D140	begin	LD HL, data area ; 40D1H	
061F		LD B, 1FH	
7E	next	LD A, (HL)	;length data
A7		AND A	;return if end of data
C8		RET Z	
23		INC HL	
4E		LD C, (HL)	;tone data
23		INC HZ	
E5		PUSH HZ	;save data pointer
59		LD E, C	;E=tone
6F		LD L, A	;L=length/16.
2600		LD H, 0	
29		ADD HL, HL	;multiply by 16
29		ADD HL, HL	
29		ADD HL, HL	
29		ADD HL, HL	
CD8340		CALL tone	;play note
E1		POP HZ	;retrieve pointer
28EB		JR Z, next	;continue unless any
C9		RET	key is pressed

NOTE PLAYER 3.0
11 BYTES

PLAYS A NOTE UNTIL ANY KEY PRESSED

object code	label	mnemonic	comments
01001F	note	LD BC, 1F nnH	;C=input half cycle
1E00		LD E, nn	;E=output half cycle
CD8340	go	CALL tone	;play the note
28FB		JR Z, go	;return if any key
C9		RET	pressed

CLEAR BUFFER
14 BYTES

FILLS THE BUFFER WITH ZEROS

object code	mnemonic	comments
21D140	LD HZ, 40D1H	;beginning of buffer
11D240	LD DE, 40D2H	;second byte of buffer
010002	LD BC, 0200H	;clear all 513 bytes
3600	LD (HL), 0	
EDB0	LDIR	;fill buffer with zeros
C9	RET	

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RESEARCH**
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BITS & BYTES

By Bill Ferrebee
MOUNTAINEER SOFTWARE

I plan to use this periodic feature to keep you informed on miscellaneous subjects that are of interest to T/S users, but do not warrant a full column by themselves. (IN OTHER WORDS: T/S Trivia!)

- Did you know that "TASWORD TWO", the excellent Word Processor program can now be used with an AERCO Parallel Printer Interface?

I recently spoke with Ray Payne of KNIGHTED COMPUTERS, and he told me that Gary Ward had modified his copy of the program, and that the TASWORD/AERCO combination did INDEED work.

Here is how it's done:

- 1) LOAD "TASWORD TWO" as normal.
- 2) Press STOP and enter "b" to go into Basic.
- 3) DIRECTLY input the following POKE values:

```
POKE 57578,32
" 57579,12
" 57999,127
" 58000,230
" 58001,19
" 58002,254
" 58003,1
" 58004,32
" 58005,-8
" 58006,241
" 58007,211
" 58008,127
" 58009,0
" 58010,219
" 58011,127
" 58012,201
```

- 4) Enter RUN to rerun the program.
- 5) Press STOP again and enter "t" to SAVE the new version.
- 6) Save the new version to tape.
- 7) Verify the new copy as normal.
- 8) Use this new copy with your AERCO Interface.

(Note: As of this writing, I am waiting for my Olivetti Ink-Jet printer to arrive. So, I am giving you the above information on the word of Ray and Gary.)

- Has anyone solved any of the 12 clues in KRAKIT ??? I contacted GLADSTONE ELECTRONICS, the marketing agent for the program, and as of yet they haven't received a completed entry. If you have any of the 12 clues solved, send them to me at:

MOUNTAINEER SOFTWARE
115 North 7th Avenue
Paden City, WV 26159

I will keep your answers confidential, and if I can collect all 12 answers, I will submit them, and equally share the prize money. (It would be nice to make them pay up!)

- Be on the lookout for a possible announcement concerning a Timex/Sinclair Convention...possibly sometime next Spring...the idea has been brought up, and a small group is planning to meet soon to work on the project. Drop me a line if you have any suggestions.

- I am very interested in hearing from all of the T/S user groups in the U.S. (and Canada). If you publish a newsletter, please put me on your mailing list, and send me any back issues you can. I plan to compile as complete a list as possible of all T/S user groups to print in a future issue of T/S Horizons. I also want to keep a file with the newsletters so we can share ideas with each other.

Well, that's it for now. If you have any interesting information you want to share, or if you just want to write, please do. My address is above.

Until next time, keep usin' that T/S and
ENJOY!!!!

TSH

REVIEWS FOR THE NON PROGRAMMER

By A. Gindin

- First, a follow-up on power supplies. If you want one that will power your monitor, write to Tom Woods, Box 64, Jefferson, NH 03583. In his latest issue of Pro/file update (\$9.95/year) he shows how to build a power supply which uses a 12V car battery. If you add an inverter (DC to AC) for the monitor you should be free of power line problems forever!

- Next, telecommunications. I also have a Byte Back Modem which I built from a kit. I added sockets for the IC's and an extra-long line to the telephone jack. It worked perfectly first time! The software loads easily and is compatible with the Z-XLR8 fast load program. I also have read that the serial port is not "standard" and must be connected with care. There are lists of BBS's in Computer Shopper (\$15.00/year) Box F, Titusville, Florida 32781 and a publication Hooking In, Computerfood Press, (\$13.95 + \$2.00 postage) Box 608R, Oracle, Arizona 85623, which is supposed to print updates (mine haven't arrived yet).

- The next hardware item will make your ZX-T/S look like a real computer: a new keyboard. While a number have been on the market, I restricted my research to those with a separate number keypad and finally bought the EZ Key 60 (\$84.95) Suite 75A, 711 Southern Artery, Quincy, MA 02169, with the larger case (\$30.00). They charge \$4.00 each for shipping even though both come in the same box! In addition to goo 2 looks the keys have definite feel (click). There are separate keys for ; "" " stop, edit, & Delete, 2 shift keys and a full space bar. The case holds the board (leave out the top cover of the computer) screwed to the base with holes for all the inputs and 2 holes for joystick plugs, if you wish to add them. The

case doesn't permit easy attachment of add-ons on the back and I recommend an extension cable.

- Another, untested by me, keyboard has recently came on the market from K2 Electronics Design, 3990 Varsity Dr., Ann Arbor, Michigan 48104. It looks about the same and has some extra keys, a power light, a joystick connector and a cassette signal filter, all for \$89.00 plus shipping including the case. The big difference is a 64K memory for an additional \$50.00. (No, they say the 64K won't work without the KRADLE Keyboard). Also available are connections and cards for 16 line of I/O and R S-232 capability. (No prices given). TSH

REAL DISASSEMBLER

For the T S 2068

This is the only fully featured technical language disassembler available for the 2068. Some reasons for its wide acceptance since first being announced in the final issue of SINC.

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- + Data operations: labeling of system variables, decimal addresses
- + Instruction plus DEFB and DEFW disassembly modes
- + Resolution of relative JP and JNZ addresses to absolute addresses
- + Disassembly relocation support
- Identification of data bytes following RST 08's & RST 40's
- + ROM bank-switching supports disassembly of all ROM banks
- + Cross-reference listings of all JP's and CALL's

A professional-level tool for debugging, documenting any Z80 code and for exporting 2068 ROM. Cassette \$15.95.

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Peaks Island ME 04108

ALTERING THE T-S 2068 CHARACTER SET - Gordon Young

One of the easiest alterations a TS2068 user can make on the machine is new character sets. Initially, the ROM uses the character table it was "born" with. Unless you tell it otherwise, it will do so forever. If there did exist another set, and you POKEd a couple of addresses, you could be printing in another font! In the 1000, a similar table also exists, but you can not alter the printing address. Likewise, you can not alter the characters (without altering the contents in the TS1000 ROM). Put simply, the address of the character set pointer is in the TS 1000 ROM and on the 2068 you will find it in RAM (where you can easily modify it).

What this special address points to is the first address of the character grid table. The grid is 8 bytes long giving each character a grid of 8 bits wide/8 bytes long. Study figure 1 where you see the first byte of 8 bits at the top. The second byte follows below and so on. It produces a grid of 64 bits. The first byte is usually a line of nothing. This produces a spacing between lines of characters on the screen. The last line or byte is reserved for the tails of lower case text. In the same manner, a column of spaces is provided to the left and right of the character itself to give spacing between sequential characters on the screen. You may notice that an even smaller grid of 36 blocks are used to produce all upper case letters. The difficult part of changing to a new character set is to determine the real value of each byte (each grid line of the character block). In creating your own set you will be left with the chore of physically drawing out each character on grid paper and decoding each byte to a decimal value you can POKE into RAM. Since each character is 8 bytes long and there are over 100 character, you have at least 800 bytes to store for a complete character set.



FIG. 1

After drawing out each character, decode each line by the following method. Each byte of the grid (each line) represents a binary (base 2) number. The left most bit represents 128 in decimal. The following bit is 128/2 or 64. The next is 64/2 or 32 and so one. Value placement is such:

bit 8 = 128 (left most column)
bit 7 = 64
bit 6 = 32
bit 5 = 16
bit 4 = 8
bit 3 = 4
bit 2 = 2
bit 1 = 1

From figure 1 you can see that line 4 of the grid has columns 7, 4, 3 and 2 filled with black boxes. The value of that byte can be determined by adding the values of those columns together. In this case column 7 has a value of 64. Column 4 is 8, column 3 is 4 and column 2 is 2. Added up this is 64 + 8 + 4 + 2 = 78. You will have to determine the values of each line (byte) of each character.

The portion of the character table for the letter "G" would be: 0/126/64/78/66/66/126. These would be sequential bytes beginning at some address. Naturally, when building your own character table, you would begin POKing these grid values at some starting address that begins with a space and is followed by the punctuation set, number, upper case, symbols, and finally the lower case. It is quite a chore to enter all these character grid values, but it will give you an entirely different font. To let the computer know about this set, you will have to change the contents of address 23606 and 23607. If the beginning address of your table begins at 40,256 then POKE 23607 with (40256-256)/256 or 156. A remainder of 64 is left and this is POKed into address 23606. If your character set is correct and you POKed the right numbers into 23606/23607, everything printed onto the screen or even the TS 2040 printer will be in the new character font! While it all sounds kinda difficult, you can experi-

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ment. You might first move the entire table from ROM into RAM somewhere and then change the values in address 23606/24607 to point to the character table address in RAM. Although if successfully done, no change in characters will occur. However, you can alter each character one by one and see how each font is altered. All you have really done is move the table into RAM where you can now alter each character. The table in ROM can not be changed so this moving of the internal table is a must.

To illustrate how each character is made, enter and RUN the BASIC program in figure 2. Each letter and symbol of the ROM table is printed in the large format onto the screen. This little program will also print the starting address of the character printed. Each character is printed bit by bit to illustrate the grid pattern.

```

10 LET y=15624
20 LET m=0
25 BEEP .1,20
27 PRINT AT 20,0;y
30 LET x=PEEK y
35 LET n=m
40 IF x<128 THEN GO TO 70
50 LET x=x-128
60 PRINT AT n,8;" "
70 IF x<64 THEN GO TO 100
80 LET x=x-64
90 PRINT AT n,9;" "
100 IF x<32 THEN GO TO 130
110 LET x=x-32
120 PRINT AT n,10;" "
130 IF x<16 THEN GO TO 160
140 LET x=x-16
150 PRINT AT n,11;" "
160 IF x<8 THEN GO TO 190
170 LET x=x-8
180 PRINT AT n,12;" "
190 IF x<4 THEN GO TO 220
200 LET x=x-4
210 PRINT AT n,13;" "
220 IF x<2 THEN GO TO 250
230 LET x=x-2
240 PRINT AT n,14;" "
250 IF x<1 THEN GO TO 280
260 LET x=x-1
270 PRINT AT n,15;" "
285 LET m=m+1
295 IF m=16 THEN GO TO 330
307 LET y=y+1
303 GO TO 30
330 PAUSE 100
340 LET y=y+1
350 CLS
360 GO TO 25

```

FIG.2



Next month I will chat about the TS 2068 display. Unlike the TS 1000, it is much more difficult to print characters onto the screen. In it, I will provide a machine language routine to SCROLL the screen. This sounds easy, but it takes a lot more than on the 1000!!

GRAPHICS BONUS:

By D. Richardson



```

1 REM "opus"
5 LET x=144
10 FOR n=0 TO 7
15 READ r: IF r=255 THEN GO TO
1000
20 POKE USR CHR$ x+n,r
30 NEXT n
35 LET x=x+1 GO TO 10
100 DATA 0,0,0,0,0,0,0,0
110 DATA 0,0,0,0,0,53,54,54
120 DATA 0,15,31,63,31,95,95,31
130 DATA 0,128,192,224,224,240,
240,240
200 DATA 0,1,1,1,0,0,0,0
210 DATA 144,144,0,255,0,0,1,2
220 DATA 55,3,3,131,67,35,70,18
230 DATA 248,248,233,192,152,56
,120,252
300 DATA 0,0,0,0,0,0,0,0
310 DATA 2,2,1,0,1,2,4,8
320 DATA 161,191,99,131,3,3,3,3
330 DATA 252,252,252,252,252,25
2,252,252
400 DATA 0,0,0,2,13,20,18,40
410 DATA 16,16,32,34,221,101,10
6,95
420 DATA 3,3,3,131,69,69,69,69
430 DATA 252,252,252,252,252,25
2,248,244
500 DATA 32,28,2,1,1,0,0,0
510 DATA 80,88,72,36,152,152,25
5
520 DATA 128,129,177,72,8,16,22
4,255
530 DATA 244,236,236,236,236,11
0,15,255
600 DATA 255
1000 PRINT "ABCD""EFGH""IJKL",
"MNOP","QRST": REM "ABCD", etc.
are to be typed in the GRAPHICS
mode.

```



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ASR
an Address Storage and Retrieval
Program
for the ZX81/TS1000, 16K

Is your little black book getting so full that you can't find the address you are looking for? Do you dread addressing all those envelopes to send out Christmas cards? Using ASR not only makes it easier to do these tasks and others, but it can save you time in the process.

ASR will hold up to 100 names, addresses and phone numbers. It will search by last name, city, state or by the zip code. It will list all addresses it finds on the screen or, if you have one, on your printer.

GETTING STARTED

I. ENTERING AN ADDRESS

After typing in and running ASR, the main menu will be presented. The first option is to add another address. By entering 1, you will be in the entry mode. You must give the first name or initial, then the last name. The street and box number must be entered next. Next is the city or town, then the state. Now the zip code must be entered and finally, the phone number. NOTE: with no phone number just press return. You will now be asked, "IS THIS OK", if it is not, enter "N" and you will be allowed to reenter. If everything is correct, just press return. Last of all you will be asked if you wish to enter another address. If you do just enter a "Y" or else press return and the main menu will return.

II. LISTING

When in the listing mode, the first address will appear on the screen. To see the next one, press the "8" and it will flip to the next address. To return to a previous address press the "5". At any time, you can send an address to the printer by pressing "2". To quit and return to the main menu, press "Q".

III. SEARCH

As I stated before, there are several different ways to search. When searching by name, only the last name must be entered. The rest is self explanatory. NOTE: unless the printer is set, all addresses will print on the screen. To use the printer in a search, it must first be set. When setting, you will be given a choice of three printer option. Choose one of the three. When searching, every address found under that search will be sent to the printer. Every time you go from the main menu to the search routine, the printer must be reset to use.

IV. PRINTER

The printer mode is used to print out the entire list of addresses. There are three formats of which you can choose.

- | | |
|-------------------------------------|--------|
| (1) LIST ALL | ; will |
| list name address and phone number. | |
| (2) NAME AND ADDRESS | ; will |
| list only name and address. | |
| (3) NAME AND NUMBER | ; will |
| list only name and phone number. | |

Choose one and enter it's number and the printer will begin to list. At any time you can break out of the printer process by pressing "Q". When finished printing, you can return to the main menu by entering a "4".

V. CHANGE

When an address must be changed or updated, you can do this by entering the change mode, but first you must know the number of the address you want to change. To do this, first you must get in the list mode and flip to the desired address, then find the number. Second return to the menu and third enter the change mode, now enter your number. The

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170 P
180 P
1) ADD
190 P
2) LIS
200 P
3) SEAI
210 P
4) PR
220 P
5) CHI
230 P
6) SRI
240 P
7) QU:
245 SI

address you want to change will be displayed and you will be asked if it is the one. Enter a "Y" if you wish to change it; otherwise enter "N" and the main menu, will return. If you enter a "Y" for your decision, you will be in the entry mode. Just enter the new address as before.

VI. SAVE

When you use the save, all your addresses will be saved along with ASR. After loading a copy of ASR with address saved, it will restart on it's own, with all addresses now in memory.

VII. STOP

When stopping, ASR will not be cleared from

memory, nor the addresses, but if you wish to continue, DO NOT use clear or run, for if you do all addresses will be lost. To restart, if the program stops, just enter "GOTO 100", and you will now be at the main menu.

This concludes the instructions to ASR. I wish you luck with the program, and I hope it is of great use to you.

NOTE: Due to the length of ASR, I am making available copies on cassette. The cost is \$5.00 per cassette. Also I would like to hear any of your comments or suggestions.

SEND TO: JOHN MARION
HC 63 BOX 650
GREENUP, KY 41144

CURRENTLY CONTAINS 1 NAMES

- (1) ADD
- (2) LIST
- (3) SEARCH
- (4) PRINTER
- (5) CHANGE
- (6) SAVE
- (7) QUIT

- (1) SEARCH NAME
- (2) SEARCH CITY
- (3) SEARCH STATE
- (4) SEARCH ZIP
- (5) SET PRINTER
- (6) PRINTER OFF
- (7) MAIN MENU

THE PRINTER IS

CURRENTLY CONTAINS 0 NAMES

- (1) ENTIRE LISTING
- (2) NAME+ADDRESS
- (3) NAME+NUMBER
- (4) MAIN MENU

PRESS /0/ TO STOP PRINTING

```

10 FAST
15 DIM F$(VAL "100",VAL "10")
20 DIM L$(VAL "100",VAL "10")
30 DIM X$(VAL "100",VAL "20")
40 DIM T$(VAL "100",VAL "15")
50 DIM S$(VAL "100",VAL "10")
55 LET ERR=VAL "0"
60 DIM Z$(VAL "100",VAL "5")
65 LET C$(VAL "1")
70 DIM P$(VAL "100",VAL "12")
80 LET EN=VAL "0"
90 DIM B$(VAL "100",VAL "4")
95 LET C$=""
100 REM
101 LET PS=VAL "1"
102 FAST
105 CLS
110 PRINT
120 FOR X=VAL "2" TO VAL "20"
130 PRINT AT X,VAL "0"
140 NEXT X
145 PRINT AT VAL "1",VAL "0",
CURRENTLY CONTAINS ,EN," NAMES
150 PRINT AT VAL "21",VAL "0",
160 PRINT AT VAL "0",VAL "10",
170 PRINT AT VAL "3",VAL "13",
180 PRINT AT VAL "5",VAL "9",
190 PRINT AT VAL "7",VAL "9",
200 PRINT AT VAL "9",VAL "9",
210 PRINT AT VAL "11",VAL "9",
220 PRINT AT VAL "13",VAL "9",
230 PRINT AT VAL "15",VAL "9",
240 PRINT AT VAL "17",VAL "9",
245 SLOW

```

```

250 INPUT A$
260 IF A$="1" OR A$="7" THEN GO
TO VAL "250"
270 IF A$="1" THEN GOTO VAL "40"
280 IF A$="2" THEN GOTO VAL "10"
290 IF A$="3" THEN GOTO VAL "20"
300 IF A$="4" THEN GOTO VAL "30"
310 IF A$="5" THEN GOTO VAL "50"
320 IF A$="6" THEN GOTO VAL "90"
330 IF A$="7" THEN GOTO VAL "95"
340 GOTO VAL "250"
400 REM
403 FAST
405 LET EN=EN+VAL "1"
410 CLS
412 PRINT AT VAL "1",VAL "3",
ENTERING ADDRESS NUMBER ,EN
415 PRINT AT VAL "4",VAL "0",
420 PRINT AT VAL "5",VAL "3",
ENTER FIRST AND LAST NAME
425 PRINT AT VAL "5",VAL "0",
430 LET ERR=VAL "0"
432 INPUT A$
435 IF LEN A$>VAL "20" THEN GOS
UB VAL "800"
439 IF ERR=VAL "1" THEN GOTO VA
L "430"
440 GOTO VAL "700"
442 LET B$(EN,VAL "1")=CHR$(LE
N A$( TO (X-VAL "1")))
445 LET B$(EN,VAL "2")=CHR$(LE
N A$( (X-VAL "1") TO ))
444 PRINT AT VAL "8",VAL "7",F$
(EN)
445 PRINT AT VAL "8",VAL "7",C
ODE B$(EN,VAL "1")+VAL "1":L$(E
N)
446 PRINT AT VAL "5",VAL "3",
ENTER STREET AND BOX NO.

```

```

457 INPUT X$(EN, TO VAL "20")
458 PRINT AT VAL "9",VAL "7",X$
(EN)
460 PRINT AT VAL "5",VAL "4",
ENTER TOWN
468 LET ERR=VAL "0"
470 INPUT A$
471 LET T$(EN)=A$
472 LET B$(EN,VAL "3")=CHR$(LE
N A$)
473 IF LEN A$>VAL "15" THEN GOS
UB VAL "800"
474 IF ERR=VAL "1" THEN GOTO VA
L "468"
475 PRINT AT VAL "10",VAL "7",T
$(EN)
480 PRINT AT VAL "5",VAL "7",
ENTER STATE
485 LET ERR=VAL "0"
490 INPUT A$
491 LET S$(EN)=A$
492 LET B$(EN,VAL "4")=CHR$(LE
N A$)
493 IF LEN A$>VAL "10" THEN GOS
UB VAL "800"
494 IF ERR=VAL "1" THEN GOTO VA
L "485"
495 PRINT AT VAL "10",VAL "7",C
ODE B$(EN,VAL "3")+VAL "5$(EN)
500 PRINT AT VAL "5",VAL "7",
ENTER ZIP CODE
510 INPUT Z$(EN, TO VAL "5")
515 PRINT AT VAL "11",VAL "7",Z
$(EN)
520 PRINT AT VAL "5",VAL "7",
ENTER PHONE NO.
530 INPUT P$(EN, TO VAL "12")
535 PRINT AT VAL "13",VAL "7",P
$(EN)
550 PRINT AT VAL "5",VAL "7",
IS THIS CORRECT?
560 INPUT A$
570 IF A$="N" THEN GOTO VAL "41
0"
575 IF C$="CHANGE" THEN RETURN
580 PRINT AT VAL "5",VAL "7",
ENTER ADDRESS?
590 INPUT A$

```

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600 IF A$="Y" THEN GOTO VAL "40
610 GOTO VAL "100"
700 FOR X=VAL "1" TO LEN A$
710 IF A$(X)="" THEN GOTO VAL "500"
720 NEXT X
730 GOSUB VAL "800"
740 GOTO VAL "425"
750 LET F$(EN)=A$( TO (X-VAL "1"
760 LET L$(EN)=A$( (X+VAL "1") T
770 GOTO VAL "442"
800 REM
805 LET ERR=VAL "1"
810 PRINT AT 10,0;"SYNTAX ERR."
815 SLOW
820 FOR I=VAL "1" TO VAL "10"
830 NEXT I
840 PRINT AT VAL "10",VAL "0";"
845 FAST
850 RETURN
1000 REM
1005 IF EN=VAL "0" THEN GOTO VAL "100"
1010 CLS
1020 LET X=VAL "1"
1025 LET X=X+(INKEY$="S")-(INKEY$="5")
1025 IF X=VAL "0" THEN LET X=VAL "1"
1027 IF X>EN THEN LET X=EN
1020 FAST
1020 CLS
1030 PRINT AT VAL "6",VAL "7";"
1035 PRINT AT VAL "8",VAL "7";F$(X)
1040 PRINT AT VAL "8",VAL "7";(CODE B$(X,VAL "1")+VAL "1");L$(X)
1050 PRINT AT VAL "9",VAL "7";X$(X)
1055 PRINT AT VAL "10",VAL "7";T$(X)
1070 PRINT AT VAL "10",VAL "7";(CODE B$(X,3));"5$(X)"
1080 PRINT AT VAL "11",VAL "7";Z$(X)
1090 PRINT AT VAL "12",VAL "7";P$(X)
1100 SLOW
1110 IF INKEY$="Z" THEN GOTO 120
1120 IF INKEY$="0" THEN GOTO VAL "100"
1130 IF INKEY$="" THEN GOTO 1110
1150 GOTO 1025
1200 LET CPY=VAL "0"
1210 LET Y$="1"
1220 GOSUB 3130
1230 LET CPY=VAL "1"
1240 GOTO 1025
2000 REM
2005 FAST
2010 CLS
2010 PRINT AT VAL "20",VAL "7";"THE PRINTER IS "
2015 PRINT (" " AND PS=VAL "0")
2020 PRINT (" " AND PS=VAL "1")
2020 PRINT AT VAL "3",VAL "10";"
2030 PRINT AT VAL "5",VAL "8";"
(1) SEARCH NAME"
2040 PRINT AT VAL "7",VAL "8";"
(2) SEARCH CITY"
2050 PRINT AT VAL "9",VAL "8";"
(3) SEARCH STATE"
2060 PRINT AT VAL "11",VAL "8";"
(4) SEARCH ZIP"
2070 PRINT AT VAL "13",VAL "8";"
(5) MAIN MENU"
2072 PRINT AT VAL "13",VAL "8";"
(5) SET PRINTER"
2075 PRINT AT VAL "15",VAL "8";"
(6) PRINTER OFF"
2078 PRINT AT VAL "17",VAL "8";"
(7) MAIN MENU"
2080 SLOW
2085 INPUT A$
2090 IF A$="7" OR A$<"1" THEN GO
TO 2000
2100 IF A$="1" THEN GOTO 2200
2110 IF A$="2" THEN GOTO 2300
2120 IF A$="3" THEN GOTO 2400
2130 IF A$="4" THEN GOTO 2500
2135 IF A$="5" THEN GOTO 4500
2138 IF A$="6" THEN LET PS=VAL "
2139 IF A$="8" THEN GOTO 2000
2140 IF A$="7" THEN GOTO VAL "10
2150 GOTO 2000
2200 CLS
2210 PRINT AT VAL "10",VAL "8";"
ENTER LAST NAME"
2220 INPUT A$
2225 FAST
2230 FOR X=VAL "1" TO EN
2240 IF A$=L$(X, TO (CODE B$(X,U
AL "2")) THEN GOSUB 2800
2250 NEXT X
2260 GOTO 2600
2300 CLS
2310 PRINT AT VAL "10",VAL "9";"
ENTER CITY"
2320 INPUT A$
2325 FAST
2330 FOR X=VAL "1" TO EN
2340 IF A$=T$(X, TO (CODE B$(X,U
AL "3")) THEN GOSUB 2800
2350 NEXT X
2360 GOTO 2600
2400 CLS
2410 PRINT AT VAL "10",VAL "9";"
ENTER STATE"
2420 INPUT A$
2425 FAST
2430 FOR X=VAL "1" TO EN
2440 IF A$=S$(X, TO (CODE B$(X,U
AL "4")) THEN GOTO 2800
2450 NEXT X
2460 GOTO VAL "2000"
2500 CLS
2510 PRINT AT VAL "10",VAL "9";"
ENTER ZIP CODE"
2520 INPUT A$
2525 FAST
2530 FOR X=VAL "1" TO EN
2540 IF A$=Z$(X) THEN GOTO 2800
2550 NEXT X
2560 GOTO 2800
2600 REM
2610 CLS
2620 PRINT AT VAL "10",VAL "11";"
2630 PRINT AT VAL "15",VAL "8";"
PRESS ANY KEY TO RETURN TO MENU"
2640 PAUSE VAL "424"
2650 GOTO 2000
2800 CLS
2805 IF PS=VAL "0" THEN GOTO 313
2810 PRINT AT VAL "8",VAL "7";"
2820 PRINT AT VAL "8",VAL "7";F$(X)
2830 PRINT AT VAL "8",VAL "7";(CODE B$(X,VAL "1")+VAL "1");L$(X)
2840 PRINT AT VAL "9",VAL "7";X$(X)
2850 PRINT AT VAL "10",VAL "7";T$(X)
2860 PRINT AT VAL "10",VAL "7";(CODE B$(X,3));"5$(X)"
2870 PRINT AT VAL "11",VAL "7";Z$(X)
2880 PRINT AT VAL "12",VAL "7";P$(X)
2890 SLOW
2900 PRINT AT VAL "20",VAL "5";"
PRESS ANY KEY TO CONT."
2910 IF INKEY$="Z" THEN COPY
2915 IF INKEY$="" THEN GOTO 2910
2918 IF INKEY$<>" " AND X=EN THEN
GOTO 2950
2920 FAST
2930 NEXT X
2930 SLOW
2940 PRINT AT 15,7;"
2950 PRINT AT VAL "20",VAL "5";"
PRESS ANY KEY TO CONT."
2970 PAUSE 10
2975 CLS
2980 GOTO 2000
3000 REM
3010 FAST
3020 PRINT AT VAL "5",VAL "8";"
3030 PRINT AT VAL "7",VAL "7";"
(1) ENTIRE LISTING"
3040 PRINT AT VAL "9",VAL "7";"
(2) NAME+ADDRESS"
3045 PRINT AT VAL "11",VAL "7";"
(3) NAME+NUMBER"
3050 IF PS=0 THEN GOTO 3070
3051 PRINT AT VAL "15",VAL "8";"
3052 PRINT AT VAL "17",VAL "2";"
PRESS /0/ TO STOP PRINTING"
3053 PRINT AT VAL "3",VAL "8";"
3060 PRINT AT VAL "13",VAL "7";"
(4) MAIN MENU"
3065 SLOW
3070 INPUT Y$
3072 IF PS=0 AND Y$="4" THEN GOT
O 3070
3074 IF Y$>"4" OR Y$<"1" THEN GO
TO 3070
3075 IF PS=VAL "0" THEN RETURN
3080 IF Y$="4" THEN GOTO 100
3120 FOR X=VAL "1" TO EN
3130 LPRINT F$(X),AT 2,(CODE B$(X,1)+1),L$(X)
3140 IF Y$="1" OR Y$="2" THEN LP
RINT X$(X)
3150 IF Y$="1" OR Y$="2" THEN LP
RINT T$(X);AT 3,(CODE B$(X,3));"
5$(X)"
3160 IF Y$="1" OR Y$="2" THEN LP
RINT Z$(X)
3170 IF Y$="1" OR Y$="3" THEN LP
RINT P$(X)
3180 LPRINT
3185 LPRINT
3185 IF CPY=0 THEN RETURN
3188 IF PS=VAL "0" AND INKEY$="0
" THEN GOTO 2000
3190 IF PS=VAL "0" THEN GOTO 400
0
3195 IF INKEY$="0" THEN GOTO 307
0
3200 NEXT X
3210 GOTO 3000
4000 CLS
4010 NEXT X
4020 GOTO 2950
4500 REM
4510 LET PS=VAL "0"
4515 CLS
4520 GOSUB 3000
4535 CLS
4540 GOTO 2000
5000 REM
5005 FAST
5010 CLS
5030 PRINT AT VAL "5",VAL "2";"E
NTER NUMBER TO BE CHANGED"
5040 INPUT C
5050 IF C<VAL "1" OR C>EN THEN G
OTO 100
5060 PRINT AT VAL "8",VAL "7";"
5070 PRINT AT VAL "8",VAL "7";F$(C)
5080 PRINT AT VAL "8",VAL "7";(CODE B$(C,1)+1);L$(C)
5090 PRINT AT VAL "9",VAL "7";X$(C)
5100 PRINT AT VAL "10",VAL "7";T$(C)
5110 PRINT AT VAL "10",VAL "7";(CODE B$(C,3));"5$(C)"
5120 PRINT AT VAL "11",VAL "7";Z$(C)
5130 PRINT AT VAL "12",VAL "7";P$(C)
5140 PRINT AT VAL "5",VAL "0";"I
S THIS THE ONE TO BE CHANGED?"
5150 INPUT A$
5160 IF A$(1)<>"Y" THEN GOTO 100
5165 CLS
5170 LET CHANGE=EN
5180 LET EN=0
5190 LET C$="CHANGE"
5195 PRINT AT 1,1;"RE"
5200 GOSUB 412
5210 LET EN=CHANGE
5220 LET C$=""
5230 GOTO 100
5240 REM
5250 CLS
5260 PRINT AT VAL "5",VAL "12";"
",AT VAL "10",VAL "3";"WHEN
READY, PRESS RETURN"
5270 PRINT AT VAL "10",VAL "21";"
5280 IF INKEY$<>CHR$ 118 THEN GO
TO 5030
5290 CLS
5295 SAVE "AS"
5300 GOTO 100
5300 CLS

```

TSH

TO 2000 or 1500,1000,1100

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TS-1000

REVIEWS

ZX 81

Hardware Review

By: John Marion This sets RAM TOP to 65535.

ITEM: ZX-GR 64K RAM
FROM: MINNY ELECTRONICS INC.
7332 DOUGLAS DRIVE
BROOKLYN PARK, MN 55443

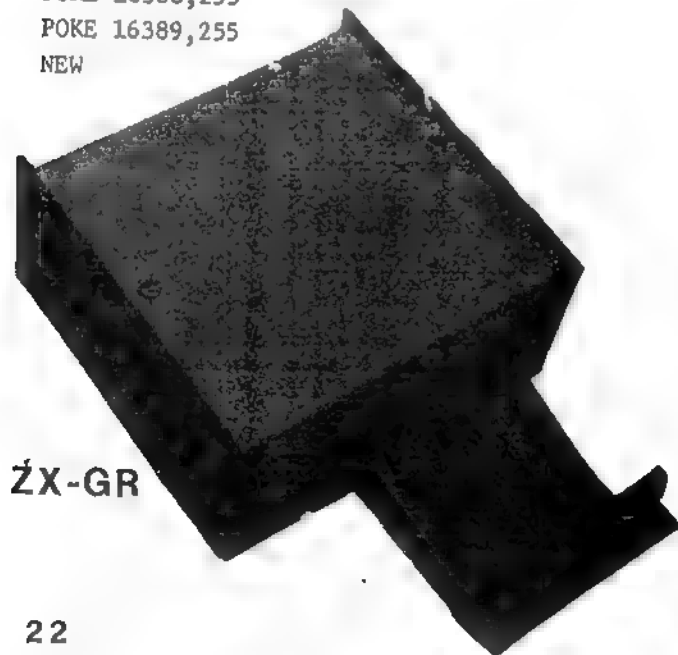
PRICE: \$149.95 + 5.95 Shipping

Although great looks aren't a feature of the ZX-GR, the unit is well-built and stable. I had no problems with wobble as I did with the Timex 16K RAM pack. The edge connector is attached to the unit by way of a 3 inch ribbon cable which adds to the stability of the unit.

Actually, like all "64K" RAM packs, the ZX-GR is only 56k, 48 of which is useable for basic programming. The other 8k is located in the unused 8-16k block of memory, which can be used for machine language programming or data tables. When using the ZX-GR with another hardware unit which requires the 8-16K block of memory, you must flip the switch on the front of the unit to the left. If you wish to use this block of memory, make sure the switch is in the correct position.

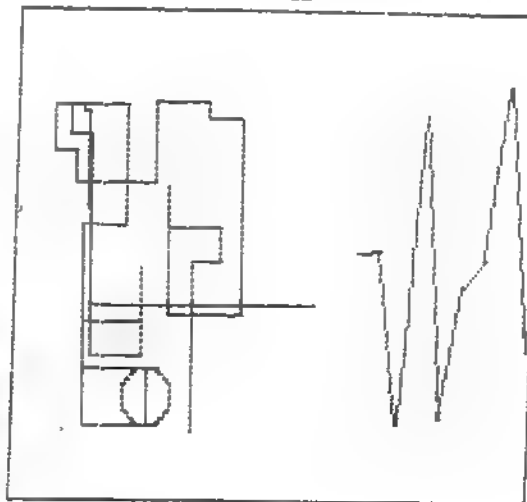
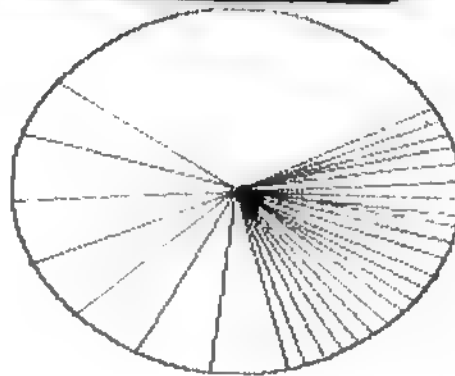
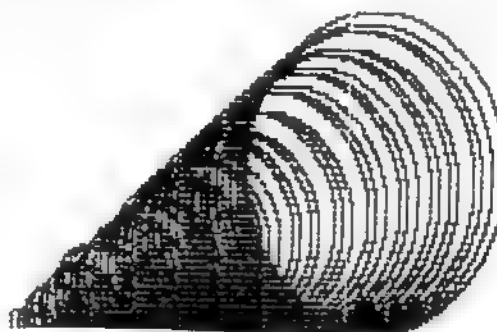
To get the full use of available memory, you must move RAM TOP to its highest position. You should do this when you first power up the computer, with the following commands:

POKE 16388,255
POKE 16389,255
NEW



ZX-GR

The manual which comes with the ZX-GR is a brief 10 page leaflet which not only covers the unit but also the hi-res graphics program which comes with the ZX-GR. The graphics program to say the least is fantastic. All the Hi-resolution comes from the software, the only hardware being the extra memory, which is essential for it to work. When the graphics program is loaded, it will self-start. The demo program draws such things as a pie chart, a graph, and a three dimensional-looking funnel, all of which can



1

be printed on the Timex printer by pressing the "Z" key and return while the demo program is running. The program has 5 main screens and 14 sprites. A Sprite is a 32 x 32-pixel figure which can be created by the user and moved all about the screen. It can merge two of the 5 main screens to form one. Also, I must mention the drawing routines included, such as circle drawing, line drawing, and even rectangle drawing, all of which are very fast. Another added feature is the ability to save individually any of the five screens on tape and load them back at will. After watching the demo program you can create your own pictures on one of the 5 screens. Pictures are drawn by moving the cursor, which leaves a thin line behind it, around with the unshifted arrow keys. Angle lines can also be drawn with the R, T, Y, U keys. One of the most fascinating things you can do is to scroll a drawing up the screen by pressing the "B" key. When the picture reaches the top of the screen it wraps around to the bottom. The same is true when drawing a line into the side of the screen; it will wrap around to the other side of the screen.

Over all the unit and program perform well and can make a great addition to your computer. Although the price of the ZX-CR is somewhat higher than other 64k RAM packs, the added graphics program may justify the price. Also we understand that this is the only 64k RAM pack available that can be used with the TS 1500.

One last note: you might consider the purchase of a fast load program to cut down on the long loading times. Be sure to get one that is relocatable, so you can move it into the 8 to 16k block of memory. TSH

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Software Review

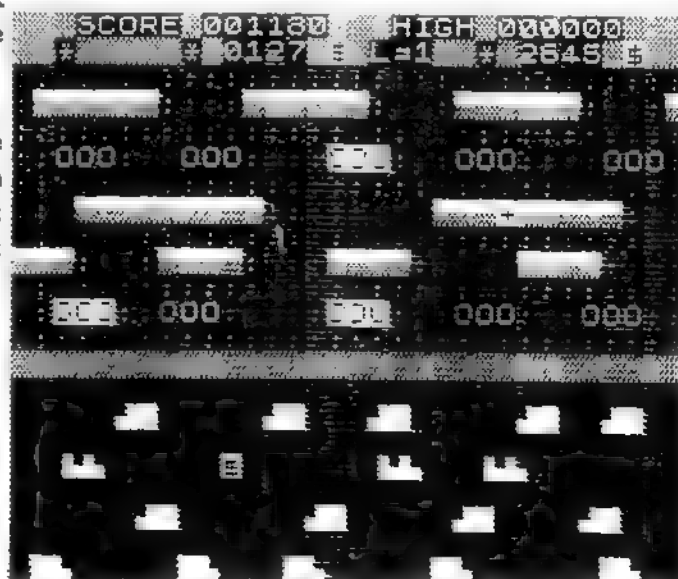
By Doug Gangi

Croaka-Crawla

Manufacturer: Quicksilva

Croaka Crawla is not just another "FROGGER" imitation. This is THE best I've seen. It is fast, and the graphics are very good. It is also very difficult. I have not yet been able to reach the 3rd level. The 6-7-8-9 keys are used (I don't know why. It sure is a weird combination), and the response is very quick. The cars look like cars (not just little blips or bleeps like on other FROGGER imitations), and the water is different from the street. There are diving turtles, alligators, and flies. They are hard to recognize (the flies and alligators), but are thoroughly explained in the program. The play is all on one screen, not two like the Timex version of FROGGER. There are also on screen scoring and the bonus points. The frog could have been done a little better (he is a "\$" and the female frog is a "+"). Overall, the game is well done and is very fun to play. The auto-repeat on each direction is very helpful (it is not bullet fast like on other games; it's a nice medium speed).

So if you like SEGA'S FROGGER, then I'm sure you'll like Croaka-Crawla. TSH



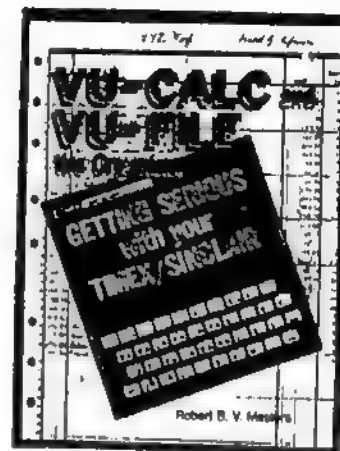
CROAKA CRAWLA

TS 1000

BOOK REVIEW (AND APPLICATION) "VU-CALC and VU-FILE"

Robert B.V. Masters
Robert J. Brady Company
Bowie, MD 20715
167 Pages \$17.95

By: Bill Ferrebee
Mountaineer Software
115 N. 7th Avenue
Paden City, WV 26159
(304) 337-8502



One of the best business-oriented programs available for Timex/Sinclair computers is VU-CALC, a spreadsheet program by Timex.

Spreadsheets can be utilized in two ways: 1) as a calculation tool, to keep rows and columns of accounting-like figures organized; and 2) as a forecasting tool, to see the results of making changes to those figures ("What If...").

The one drawback with VU-CALC is the sparseness of documentation provided with the program. A foldout sheet is included in the cassette box, but it does not explain the program's functions in a clear manner.

But, a new book has been published that will take one through a step-by-step tour of both VU-CALC and VU-FILE (or "The Organizer"), Timex's database program.

In "VU-CALC and VU-FILE", Robert Masters give clear explanations of every command available for both programs. He also provides examples of actual applications that can be used almost immediately.

Masters provides the user with ways of

VU-CALC TEMPLATE : PAYROLL REPORT

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	
A	DATE	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	A
B	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	****	B
C	01/15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	C
D	01/31	①	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	D
E	02/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	E
F	02/29		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	F
G	03/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	G
H	03/31		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	H
I	04/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	I
J	04/30		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	J
K	05/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K
L	05/31		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L
M	06/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	M
N	06/30		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	N
O	07/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	O
P	07/31		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P
Q	08/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Q
R	08/31		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	R
S	09/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S
T	09/30		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	T
U	10/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	U
V	10/31		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V
W	11/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	W
X	11/30		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Y	12/15		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y
Z	12/31		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Z

NOTES: This spreadsheet is designed to keep individual & year-to-date payroll periods for 1 calendar year. This program is based on 24 pay periods (on the 15th & end of each month), with 3 deductions (Federal W/H, F.I.C.A., & State W/H) each period. When entering Formula ⑥ in Columns 12 - 17, follow the instructions listed on the right. Make sure that you have at least a "G" in each cell that has a "X" in it.

Formulas

- ① C02 A1:R1Z
- ② C02 * C03 R1:R1Z
- ③ C05 + C06 + C07 R1:R1Z
- ④ C04 - C08 R1:R1Z
- ⑤ C03 R1:C117
- ⑥ C11 + D03 R1:R1Z

①: first use of formula

PROCEDURE FOR CELLS D12 - D17

- 1) Move cursor to D11
- 2) Press (O)et
- 3) Press (M)ake current
- 4) Move cursor to appropriate column
- 5) Press (S)et
- 6) Make note of formula as you see it
- 7) Press (O)et again
- 8) Press (C)hange
- 9) Re-enter the formula exactly as noted in Step 6
- 10) Press (R)elative : (R)ow to row "2"

REPEAT FOR COLUMNS 12 - 17

customizing the programs, and reveals little-known tips to help fully utilize them. Worksheet templates are even included for the two programs, so the user can xerox them, and preplan the layout of their applications.

Utilizing techniques shown in this book I have designed a Payroll Report that anyone that gets paid bi-monthly can use. And through some simple changes, it can be modified to fit any payroll system

Even though I only did an in-depth review of the VU-CALC portion of the book, I would highly recommend it to anyone that wants to get the most out of either program. You'll be amazed at what you can do!

TSH

MAGAZINE REVIEW

By Daniel Richardson

"Computer Trader Magazine"

In the three and a half years that Chet Lambert has been publishing the Computer Trader (now Computer Trader Magazine), it has gone from a single sheet for people wanting to buy, sell, or trade used equipment, to a 100-page magazine with glossy paper and a considerable amount of advertising. As soon as you look at it, it's clear that CTM is not published by McGraw-Hill or Wayne Green. The cover design and interior layout is generally sloppy (even compared to T-S Horizons). But that's really part of the magazine's charm.

Beginning each issue with "Chet's Computer Chats," several paragraphs of casual comments and announcements to his readers, CTM is largely a monthly collection of columns by contributors on a variety of computer-related subjects. Each column has a name (like PET FLEA BYTES, The Commodore Kid, TS PLUS, etc.) and generally features a picture of the author's smiling face. The relaxed, conversational style gives the magazine a "homey" feel you don't get from Byte or Computer & Electronics.

These columns cover a wide range of computers (including Atari, Apple, Commodore, and others, plus some ham radio articles) but has always had 4 to 6 Timex-related articles per

issue. Chet claims that CTM is "the largest of the magazines now supporting the Timex-Sinclair computers."

The authors range from marginally talented to capable and very informative. My personal favorite is Oscar Sensabaugh, to whom I usually turn first. His column "Computin' in the Country" is as likely to start out talking about the author's grandchildren or his navy days as about Timex computers. He writes with a "southern accent," flawed grammar and spelling (I assume, on purpose), and is always good for a few giggles. A recent column starts out "Like I done mentioned onct or three times, I got me one of them Timex 2068's..." When he finally gets down to "talkin' turkey" it's clear that the author is knowledgeable and a competent writer.

Unfortunately, Oscar's column usually contains the only Timex reviews in the publication. It's the only thing close to a new product section. Also there are fewer Timex-related ads in CTM than in T-S Horizons.

Another regular is Gordon Young who is also known for his former publication Z-West and for his excellent work in the page of T-S Horizons. His column in CTM is TS Plus. The content varies but features machine code and BASIC programming articles of the quality he is known for.

Some of the other writers seem to be good. Gary Hearn recently wrote a nice introduction to ZX81/TS1000 machine code and a lengthy Byte-Back modem review.

Another recent article by James Oram, describes the construction of a PROM Burner for the TS1000.

All in all computer trader magazine is a nice publication with a variety of articles, and a good place to find used equipment. \$12/12 monthly issues (\$25 Mex., Can. \$2.50 Sample) 1704 Sam Drive, Birmingham, AL 35235. TSH

TS-2068 REVIEWS

"MUSICOLA"
(A Complete Music Tool)

By
Bill Ferrebee

PROGRAM NAME: Musicola
AUTHOR: T.A. David
TYPE: Educational/Entertainment
MACHINE: T/S 2068 (Printer Optional)
PRICE: \$24.95
AVAILABLE FROM: T.E.J. Computer Products
859 North Virgil Avenue
Los Angeles, CA 90029

I guess you might as well call me a "Bill of all trades". I have experience in programming, in advertising, in writing (as I hope this review is an example), and in marketing.

But my first vocation is music. I am within one semester of completing a degree in Music Education at West Virginia University. I do a lot of arranging and composing for various musical groups; from music for two trombones to arrangements for the 300-member W.V.U. Mountaineer Marching Band.

It was a wish I had to be able to combine my love to write music, and to use my T/S 2068 in doing so. I knew that it could be done on other personal computers, notably with the MUSIC CONSTRUCTION SET by Electronic Arts for the Commodore 64.

But now there is a music composition program for the T/S 2068. MUSICOLA by Cannan Software enables you to use your 2068 to compose your own melodies, and to play song that you already know and love. It plays in three-part harmony (using the three-voice sound chip in the 2068), and if you have a printer, it can actually print the music out on a musical staff!

Enclosed with the program is an Instruction Sheet. The documentation is the one weak point of the package. It is a general

overview of some very sophisticated software. I found this same fault with the documentation for VU-CALC and VU-FILE. Robert Masters solved the problem with a more detailed book on VU-CALC and VU-FILE.

The program, when loaded, has a demonstration medley of a Bach invention and an Irish jig. This helps to demonstrate the capabilities of MUSICOLA, and it is a very nice piece of music.

Whether you favor rock, county, classical, or jazz, MUSICOLA can play "your kind of music".

The general descriptions of the program's features are very good. This program has three voices available (1 melody - 2 harmony) and a range of over three octaves. Since it is for the 48K 2068, a composition can be very lengthy. All compositions can be edited, and can be saved to tape for later use.

An idea I had would be for Canaan to release first a more detailed manual for MUSICOLA (with perhaps a Quick Reference card showing which keys correspond with which notes on the staff), and then perhaps a series of tapes with songs already programmed for use (something like "The Best of Michael Jackson for the 2068").

Overall, I was very impressed with the capabilities of MUSICOLA, and if more detailed documentation would become available, there would be no way to top it! The program itself is very well laid out, and my compliments go to the author.

In short, if you would like to learn more about music, or would just like to play some of your "favorites" on your 2068, MUSICOLA is for you!

TSH

VU-3 D 2068 Software Review

By Doug Gangi

Although VU-3D is billed as a business program, many of you will have fun with tinkering around and showing off the program to your friends. This program sure shows off the stuff a TS 2068 can do!

VU-3D is a program that allows you to draw and view figures in a 3 dimensional perspective. The graphics are excellent, and the 3-D is so real! In normal viewing mode, no hidden lines are taken out, but if you get into picture mode, you can: take out the hidden lines (the computer does it all at the touch of a button!), copy your picture to the printer, shade the picture from 8 different directions, and magnify and reduce the

picture. The format of the program is excellent, and you really don't need many instructions to operate the program. Drawing your picture is as easy as 1-2-3! All you do, is draw the picture on the screen (the flat face of the figure) and then give it depth by pressing the 'N' key. The program comes with a demo wine glass shaped figure (as seen in the picture; the cube I drew myself).

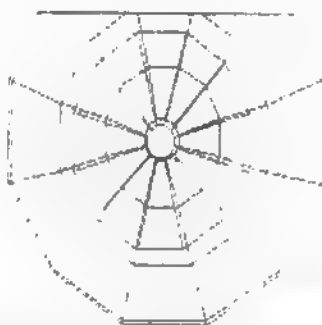
Included in the program is the ability to save the figure you have drawn, or load another one from cassette. So if you draw a great picture you would like to keep, you can! You can also choose the border, paper, and ink colors on the screen.

VU-3D is an overall excellent program. I think anyone with a Timex-Sinclair 2068 should have one just to see the capabilities of the powerful machine.

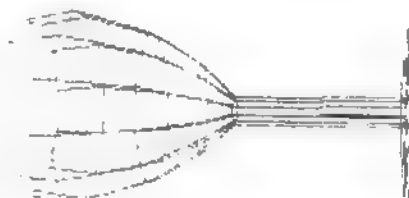
TSH



ARG=002.25 ROT 154 230 D=+003.0



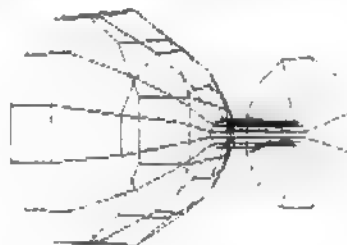
ARG=005.92 ROT 001 001 D=+003.0



ARG=004.75 ROT 100 001 D=+003.0



ARG=002.25 ROT 154 230 D=+003.0



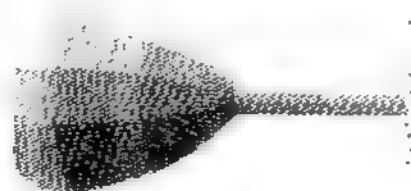
ARG=004.75 ROT 035.001 D=+003.0



ARG=001.41 ROT 124 022 D=+003.0



ARG=002.25 ROT 154 230 D=+003.0



ARG=004.75 ROT 100 001 D=+003.0



ARG=001.41 ROT 124 022 D=+003.0

REVIEW: By Bill Ferrebee

PROGRAM NAME: T/S COUNT

AUTHOR: Jim Payne

TYPE: Business (Accounting)

MACHINE: T/S 2068 (Printer Optional, but
very useful)

PRICE: \$29.95

AVAILABLE FROM: PHEONIX ENTERPRISES
1780 N Dupont Highway, No.17
Dover, Delaware 19901

I am currently finishing up a degree in Data Processing at our local community college, and about two months ago I was checking my required classes list. Oh no! It can't be! You mean I STILL have to take Accounting I?!! "There MUST be some mistake...I don't need to learn...if I want my degree I do, huh? Oh, well, I might as well get it over with now!"

So, I signed up for Accounting I in summer school. The class was 4 days a week, but it only lasted for 6 weeks.

About a week after I started the class (and believe it or not, I was ACTUALLY understanding it!), I received a package from Jim Payne at PHEONIX ENTERPRISES. It was a program called T/S COUNT. I couldn't believe it! It was a complete ACCOUNTING PACKAGE for the T/S 2068! What timing!

Well, after examining the very nice folder-type packaging, I opened up the package to find a cassette tape and Instruction Manual. Also included is a registration card that must be sent back. For a 90-day period, PHEONIX will replace any damaged tape for \$7.50.

Upon loading the program, a very colorful cover sheet appears with the company's logo. A nice use of the SCREEN\$ technique.

The next thing to appear on the screen is the MAIN MENU and this menu shows to me that Jim has attempted to make T/S COUNT as "user-friendly" as possible. There are 13 different choices on the Main Menu, numbered from 00 to 12. If you attempt to input any other number or letters, the input routine

rejects your choice, and returns you to the Main Menu again.

Now since I'm taking that Accounting class, and this is an Accounting program...I thought I could "kill two birds with one stone" by CHECKING my homework assignments with T/S COUNT. (Now you don't think that I would use this chance to actually do my homework with it! WANNA BET???)

By carefully reading the Instruction Manual provided, and knowing a few simple Accounting principles (Debits/Credits, Categories of accounts, etc.), T/S COUNT can be used to keep the accounting records for any small business or household.

T/S COUNT is complete with a General Journal and General Ledger. Once the accounts have all been entered, T/S COUNT can generate a chart of accounts, a Trial Balance, a copy of the General Ledger, and an Income Statement. All temporary accounts are closed at the end of the accounting period, and all of the information can be saved to tape for future reference, or later updating. Jim recommends that you use a printer to keep hard copy of the completed statements, and I agree.

To sum up opinion on T/S COUNT, I feel that Jim has done an excellent job translating the enormous task of basic accounting to the personal computer medium. If you have your own small business or would like to keep your household accounts straight, I highly recommend T/S COUNT. It is a well developed program, and can save anyone hours of time in the accounting cycle.

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\$495 for information

Jim Clatfelter
646 Corwin Avenue
Glendale, CA 91206

GAME REVIEW

By Tex Faucette

"FOOTBALL"

Copyright 1982

By BANTA SOFTWARE

8088 Highwood Way

Orangeville, California 95662

If this one confuses you, take a look at the copyright date. One may deduce that the program (for the 2068) is an "upgrade" from the TS-1000 version. While an upgrade to a newer machine is certainly permissible, and often very desirable, BANTA loses points on this one for failing to upgrade the documentation. Said documentation indicates that considerable talent was utilized (two statisticians, one combo statistician-mathematician and one combo mathematician-programmer!!) in creating the game, which is guaranteed to run on the "Sinclair ZX800 (???), ZX 81, and T/S 1000". The only concession to the 2068 is a hand lettered statement that to load, "FOOTBALL" must be all capital letters.

Nevertheless, the game does run with good color on the 2068. Motion, bells, and whistles are minimal, but a dedicated football fan can no doubt enjoy the play, either against the computer, a friend, or left hand against right hand.

On the display, and above the playing field, the standard statistics are displayed along with options for the next play (including "punt" - for the undecided). The current position on the playing field is indicated by a ball which moves to the position resulting from each play. Statistics are updated at the same time.

I repeat that I have no prejudices concerning upgraded programs. I do feel that in this case more effort and imagination should have been expended on the upgrade in terms of graphics and documentation.

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VOICE CHESS 2068 Software Review

By Doug Gangi

Voice Chess is a chess program for the TS 2068 that actually talks to you! All speech comes through the speaker. The manufacturer of Voice Chess is Softsync, and they should get a pat on the back. They finally added the necessary touch to chess. I don't know how many of you out there can't stand to sit in front of a computer and ply chess for an hour or so. Voice Chess is the first and only chess game I can sit down to and actually enjoy it the whole game through. The voice really does add reality to the game.

Some of the things the computer says are quite smart-alecky, like: "Oh, I'm scared", and other witty comments. A quite surprising feature of Voice Chess is the ability to guess your next move. If the computer is right, after you move it will say "I expected that!", which can be quite freaky. When I first played Voice Chess, I was scared by that. I thought there must be a man inside the computer. The computer tells you if you made an invalid move, if he has check, and tells you the moves, whether he made them or you did (I call it a "he" because he has a man's voice).

The voice is actually made by the BEEP command. You will find this out if you debug the program. You could probably add your own phrases if you get sick of the computers sometimes witty comments.

The graphics of the program are very good. Each piece is drawn out, and the movement is also very quick. The computer actually only takes 3 seconds to decide on it's move, but it takes it about another 15 to learn how to say it (this is on level one of course. I still haven't beaten it yet!).

For the \$24.95 I paid for the game, I say that I got \$35 worth out of it. If you hate all the current computer chess games you've played, this one is going to turn you around.

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ITEM: VIEWord. A word processor for the TS 2068 for use with the Timex printer or AERCO interface. One-character commands - easily memorized. Complete text editing. Embedded printer commands. Advanced print formatting. 350 64-character lines or 703-32 character lines. \$25 or send SASE for more information to Jim Clatfelter, 646 Corwin Av., Glendale, CA 91206.

ITEM: TS 2068 Mailing list program from MOUNTAINEER SOFTWARE. Store up to 255 names, addresses and phone numbers, in this user-friendly, menu-driven program. SEARCH and SORT for easy updating. For more information write to Mountaineer Software, 115 N. 7th St., Paden City, WV 26159.

ITEM: New addresses for vendors.

- ITEM: DAK Industries is selling the Gorilla/
Banana printer for \$129 plus \$8 shipping.
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ITEM: TS1000 to Atari 2600 VCS Interface. Available from Huron Valley Research, POBox 732, Highland, MI 48031, for \$125.00 + \$5.00 postage and handling. Allows you to download. Atari ROM games into your TS/ZX, disassemble the games machine code, vary the game (or create a new one) and upload back into the 2600 to play the edited game.

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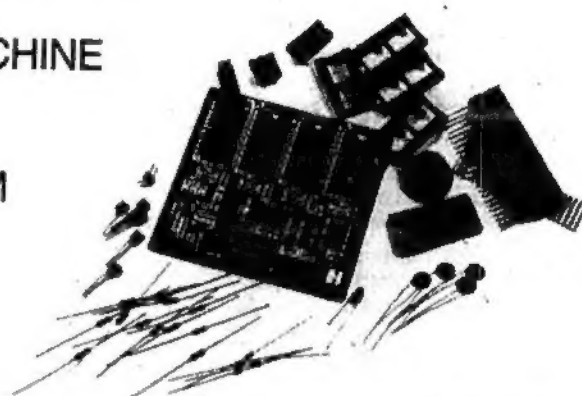
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